AMAZON WEB SERVICES

CERTIFIED SOLUTION ARCHITECT

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❖ CLOUD COMPUTING:

- Cloud computing is a platform that provides access to **Computing Resources** over the internet with **Pay-As-You-Go** Pricing
- Companies offering these computing services are called **Cloud Providers** and typically charge for cloud computing services based on usage.
- Cloud providers maintain own massive **Datacenters** which have thousands of servers, storages, databases and component critical to the organizations working.
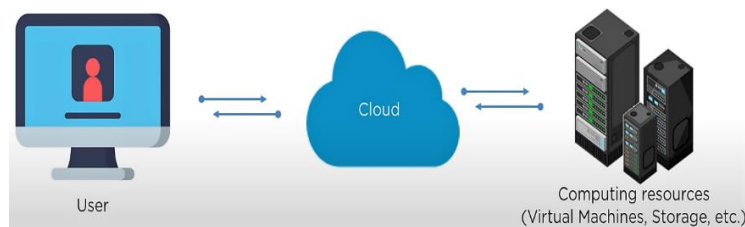
➢ CLOUD COMPUTING BENEFITS:

FLEXIBILITY:
Users can scale services to fit their needs, customize applications and access cloud services from anywhere with an internet connection.

EFFICIENCY:
Enterprise users can get applications to market quickly, without worrying about underlying infrastructure costs or maintenance.

AGILITY:
In a cloud computing context, agility often refers to the ability to rapidly develop, test and launch applications that drive business growth in a constantly changing IT environment.

ELASTICITY:
Elastic computing is the ability to quickly expand or decrease computer processing, memory and storage resources to meet changing demands without worrying about capacity planning.

SCALABILITY:
Scalability refers to the idea of a system in which every application or piece of infrastructure can be expanded to handle increased load.

DISASTER RECOVERY:
Cloud disaster recovery (CDR) is a cloud-based managed service that helps you quickly recover your organization's critical systems after a disaster and provides you remote access to your systems in a secure virtual environment.

PERFORMANCE:
The biggest cloud computing services run on a worldwide network of secure datacenters, which are regularly upgraded to the latest generation of fast and efficient computing hardware.

SELF-SERVICE PROVISIONING: It means the computing resources are used for almost any kind of workload. The end users can spin up compute resources for almost any type of workload on demand.

AUTOMATIC SOFTWARE UPDATES: The beauty of cloud computing is that the servers are off-premises, out of sight and out of your hair. Suppliers take care of them for you and roll out regular software updates including security updates so you don't have to worry about wasting time maintain the system yourself.

SECURITY: Every day thousands of devices are stolen –laptops, notebooks, call phones- all with critical data. Given that your devices are password protected, you are likely only looking at a monetary loss of the device because all of your data and documents are still readily available in the cloud.

➢ HOW CLOUD COMPUTING WORKS:

Cloud computing services all works a little differently, depending on the cloud provider. But many providers a friendly, browser-based dashboard that makes it easier for IT professionals and developers to order resources and manage their accounts.

Some cloud computing services are also designed to work with REST APIs and a Command Line Interface (CLI), giving developers multiple options.

➢ CLOUD SERVICE MODELS:

- There are three main types of cloud computing services.
- Each type of cloud computing provides different levels of control, flexibility, and management so that you'll select the proper set of services for your needs.
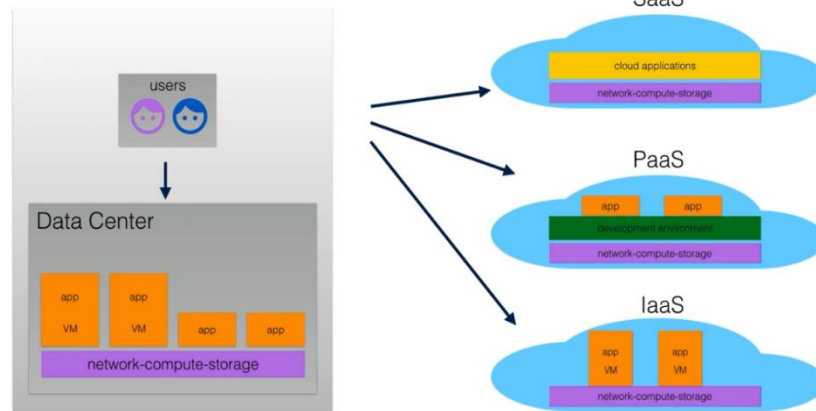
IAAS (INFRASTRUCTURE AS A SERVICE):
- You rent IT infrastructure –Servers, Storage, networks, VMs, Operating Systems from a cloud provider.
- A vendor provides clients pay-as-you-go access to storage, networking, servers, and other computing resources in the cloud.

PAAS (PLATFORM AS A SERVICE):
- A service provider offers access to a cloud-based environment in which users can build and deliver applications. The provider supplies underlying infrastructure.
- Supply an on-demand environment for developing, testing, delivering and managing software applications.

SAAS (SOFTWARE AS A SERVICE):
- A service provider delivers software and applications through the internet. Users subscribe to the software and access it via the web or vendor APIs.

➢ CLOUD DEPLOYMENT MODELS:
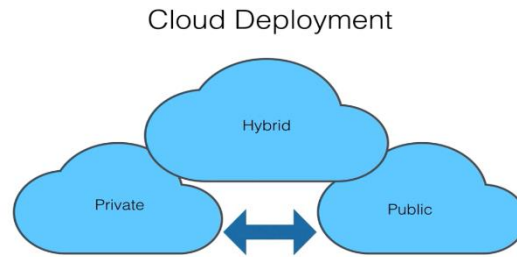

PUBLIC CLOUD:
- Computing resources are provided publicly based on a **pay-per-use** model.
- These are owned and operated by a **third-party** cloud service provider.

PRIVATE CLOUD:
- The cloud infrastructure is owned by an organization and hosted and operated internally.
- It can be physically located on the company's **on-site** data center.

HYBRID CLOUD:
- Computing resources are provided by a composition of private and public.
- It gives businesses greater flexibility and more deployment options.
- It is a more complex cloud solution because the organization must manage multiple platforms.
- Suitable for cost effectiveness, backup, disaster recovery, dev and testing.
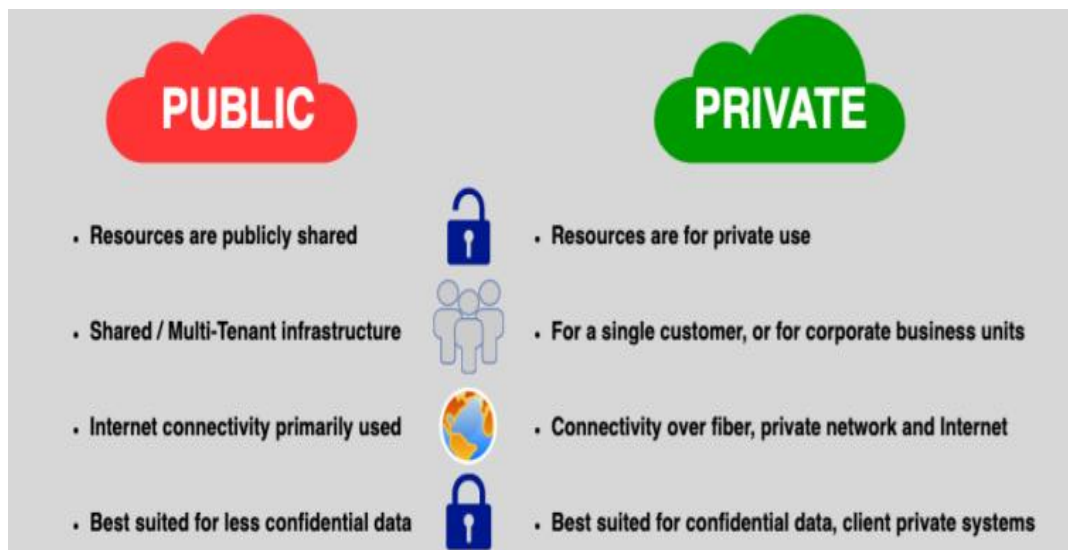
❖ **AMAZON WEB SERVICES (AWS):**

- AWS is a secure cloud services platform, offering compute power, database storage, content delivery and other functionality to help businesses scale and grow.
- It is a comprehensive cloud computing platform that includes infrastructure as a service (IaaS) and platform as a service (PaaS) offering.
- AWS services offer scalable solutions for compute, storage, databases, analytics, and more.
- It is the world's most comprehensive and broadly adopted cloud platform.
- This offers over **200+** fully featured services from data centers globally.

BENEFITS OF AWS

- Easy to use
- Reliable
- Cost-Effective
- Scalable and High Performance
- Secure
- Global Leader

PILLARS OF AWS -ARCHITECTED FRAMEWORK:

- Creating a software system is a lot like constructing a building. If the foundation is not solid, structural problems can undermine the integrity and function of the building.
- The AWS Well-Architected Framework describes key concepts, design principles, and architectural best practices for designing and running workloads in the cloud.
- The Six pillars are:
  - Operational Excellence
  - Security
  - Reliability
  - Performance Efficiency
  - Cost Optimization
  - Sustainability

➢ AWS GLOBAL INFRASTRUCTURE:

- AWS cloud operates Availability Zones (AZ'S) with in the Geographic Regions around the world.
- The AWS Cloud spans 84 Availability Zones within 26 geographic regions around the world.

REGION:
- AWS has the concept of a Region, which is a physical location around the world where we cluster data centers.
- Each AWS Region consists of multiple, isolated, and physically separate AZs within a geographic area.

AVAILABILITY ZONES (AZ'S):
- It consists of one or more discrete data centers, each with redundant power, networking and connectivity, housed in separate facilities.
- These AZ's offer you the ability to operate AWS services.

DATA CENTER:
- A data center is a facility that centralizes an organization's IT operations and equipment, as well as where it stores, manages, and disseminates its data.

EDGE LOCATION:
- An Edge Location is an AWS Data center which does not contain AWS services. Instead, it is used to deliver content to parts of the world.

❖ AWS CERTIFICATIONS:

- AWS Certification is curated by industry professionals as per the industry requirements and demands.
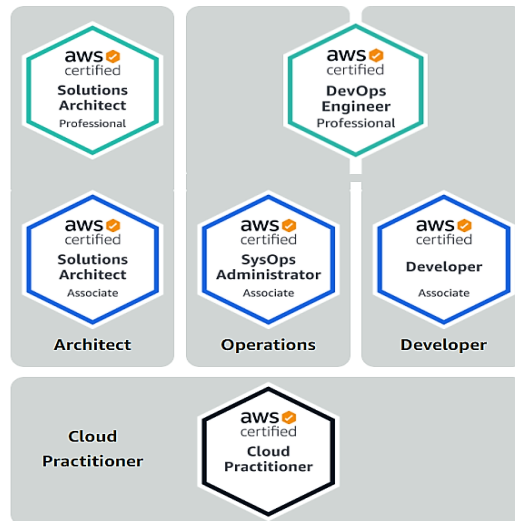
Professional

Two years of comprehensive experience designing, operating, and troubleshooting solutions using the AWS Cloud

Associate

One year of experience solving problems and implementing solutions using the AWS Cloud

aws certified **Solutions Architect** Professional

aws certified **DevOps Engineer** Professional

aws certified **Solutions Architect** Associate

aws certified **SysOps Administrator** Associate

aws certified **Developer** Associate

Architect　　**Operations**　　**Developer**

Specialty

Technical AWS Cloud experience in the Specialty domain as specified in the **exam guide**

aws certified **Advanced Networking** Specialty

aws certified **Data Analytics** Specialty

aws certified **Database** Specialty

aws certified **Machine Learning** Specialty

aws certified **Security** Specialty

Foundational

Six months of fundamental AWS Cloud and industry knowledge

Cloud Practitioner

aws certified **Cloud Practitioner**

- This AWS Training will help you prepare for the AWS Certified Cloud Practitioner and AWS Certified Solutions Architect (Associate exam SAA-C02).

➢ AWS CERTIFIED CLOUD PRACTITIONER:

- AWS Certified Cloud Practitioner is intended for anyone who has basic knowledge of the AWS platform. Before taking this exam, we recommend you have:
  - Basic understanding of IT services and their uses in the AWS Cloud platform
  - Knowledge of core AWS services and use cases, billing and pricing models, security concepts, and how cloud impacts your business

aws certified **Cloud Practitioner**

➢ AWS CERTIFIED SOLUTIONS ARCHITECT (ASSOCIATE):

- AWS Certified Solutions Architect – Associate is intended for anyone with one or more years of hands-on experience designing available, cost-efficient, fault-tolerant, and scalable distributed systems on AWS. Before you take this exam, we recommend you have:
  - One year of hands-on experience with AWS technology, including using compute, networking, storage, and database AWS services as well as AWS deployment and management services
  - Experience deploying, managing, and operating workloads on AWS as well as implementing security controls and compliance requirements
  - Familiarity with using both the AWS Management Console and the Command Line Interface (CLI)
  - Understanding of the AWS Well-Architected Framework, AWS networking, security services, and the AWS global infrastructure
  - Ability to identify which AWS services meet a given technical requirement and to define technical requirements for an AWS-based application

EXAM OVERVIEW:

Level: Associate

Length: 130 minutes to complete the exam

Cost: 150 USD

Format: 65 questions, either multiple choice or multiple response

Delivery method: Pearson VUE and PSI;

NOTE: https://aws.amazon.com/certification/certified-solutions-architect-associate/

➢ **AWS FREE TIER:**

- Gain free, hands-on experience with the AWS platform, products, and services

TYPES OF OFFERS:

- Explore more than 100 products and start building on AWS using the Free Tier. Three different types of free offers are available depending on the product used. Click icon below to explore our offers

Free trials

Short-term free trial offers start from the date you activate a particular service

12 months free

Enjoy these offers for 12-months following your initial sign-up date to AWS

Always free

These free tier offers do not expire and are available to all AWS customers

12-MONTHS FREE:

- These free tier offers are only available to new AWS customers, and are available for 12 months following your AWS sign-up date.
- When your 12-month free usage term expires or if your application use exceeds the tiers, you simply pay standard, pay-as-you-go service rates (see each service page for full pricing details). Restrictions apply; see offer terms for more details.

ALWAYS FREE:

- These free tier offers do not automatically expire at the end of your 12-month AWS Free Tier term, but are available to both existing and new AWS customers indefinitely.

TRIALS:

- These free tier offers are short term trial offers that start from the time of first usage begins.
- Once the trial period expires you simply pay standard, pay-as-you-go service rates

NOTE: https://aws.amazon.com/free/

➢ AWS FREE TIER (12 MONTHS):

- AWS is offering a free usage tier for new AWS customers.
- Amazon EC2 instances with 750 hrs usage of Linux and 750 hrs usage of windows (t2.micro).
- Amazon LightSail 750 hours.
- Amazon RDS 750 hours.
- Amazon DynamoDB 25GB.
- AWS LAMBDA 1 million.
- 30GB of Amazon EBS in General Purpose (SSD) or Magnetic.
- 1GB of Snapshot storage.
- 5GB of Amazon S3 standard storage.

NOTE: AWS free usage tier will expire 12 months from the date you sign up.